MUHAMMAD RAEES

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PROFESSIONAL SUMMARY

PhD-trained UX and behavioral researcher specializing in human-AI interaction. I combine qualitative research, controlled experiments, and behavioral analytics to understand users' needs, mental models, and workflows. In my research, I design and implement end-to-end systems to establish user reliance on AI and improve agentic system usability. My work has been published (distinguished) in top HCI venues.

EDUCATION

- **PhD in Computing & Information Sciences** *2022 - 2026*
  Rochester Institute of Technology (RIT), Rochester, NY CGPA: 4.00/4.00
  - **Thesis:** Understanding and Designing Human-Centered AI Interactions for Non-Expert Users
  - **Interests:** Human-AI Interaction, Mixed Methods Research, Customer Analytics, Human-Centered Design
- **Master of Science in Software Engineering** *2015 - 2017*
  Bahria University Islamabad (BUIC), Pakistan CGPA: 4.00/4.00 - Summa Cum Laude
  - Courses: Usability Engineering, Research Methods, Data Mining/Warehousing
- **Bachelor of Science in Software Engineering** *2009 - 2014*
  Mirpur University of Science and Technology (MUST), Pakistan CGPA: 3.87/4.00 - Distinction

PROJECTS/PORTFOLIO

- **Interactive ML for Business Professionals (with Sappi)** *2023 - 2025*
  Tools: Python, scikit-learn, Dash, Google Cloud Platform
  - Led 0-to-1 development of B2B analytics tools, enabling business users to analyze their own datasets and inform data-driven decisions through **mixed-methods research and prototyping**.
  - Uncovered opportunities for customer **analytics through behavioral insights**, improving data-driven workflows.
  - Led mixed-methods evaluations **(30+)** through probes, uncovering user behaviors involving trust, understanding, and perceived control. (Published: CHI '23, '25, '26).
- **AI-Assisted Decision Support (with Sappi)** *2024 - 2026*
  Tools: Python, scikit-learn, Dash, Google Cloud Platform
  - Designed mixed-methods studies combining **behavioral and subjective measures** to investigate users' reliance on AI recommendations and analytical decision-making.
  - Developed **evidence-based design guidelines to mitigate AI over-reliance** and improve appropriate reliance, user agency, and engagement. (Published: UMAP '25).
- **AI-Assisted Writing for Non-Experts' Work Support** *2024 - 2026*
  Tools: Python, Large Language Models (ChatGPT)
  - Conducted mixed-methods research with DSO professionals, evaluating **human-AI workflows and reliance** on AI-generated alt text for complex scientific figures.
  - **Informed redesign of AI-assisted accessibility workflows** through value-centric evaluation of output quality and user needs. (Published: ASSETS '25). *Under Review: TACCESS '26.*
- **Conversational Visualization Authoring** *2025 - 2026*
  Tools: Python, Large Language Models (ChatGPT)
  - Developed an interactive agentic tool for **conversational data exploration** and visualization, enabling users to **interrogate data and evaluate AI-generated output**.
  - Designed evaluation workflows to assess AI output quality and support user oversight.

EXPERIENCE

- **Graduate Research Assistant** *Aug 2022 - Present*
  Rochester Institute of Technology Rochester, NY
  - **Designed and led** mixed-methods research studies in human-centered AI interaction with 100+ participants.
  - Collaborated with stakeholders across **academia and industry** to address business and research problems.
  - Published peer-reviewed research in reputed HCI venues, with multiple manuscripts under review.
  - **Co-instructed** undergraduate and graduate-level courses in human-centered AI development (2026-2027).
- **Lecturer** *2019 - 2022*
  Mirpur University of Science and Technology Pakistan
  - **Developed and taught** classes to 500+ undergraduate and graduate-level students.
  - Designed and led efforts in research and development of organizational utility tools and socio-technical systems.
  - Devised and led initiatives for quality improvement and organizational educational objectives.
  - **Teaching Experience:** Human-Computer Interaction, Introduction to Machine Learning, Foundations of Software Engineering, Web Design and Development, Programming Fundamentals.

Skills

- **General:** Python (Data Analysis, Machine Learning), R, SQL, JavaScript, C/C++, App/Web/ML Prototyping
- **Research:** User-Centered Interaction Design, Quantitative and Qualitative Methods, Surveys, Interviews, Ethnography, Thematic Analysis, Experimental Design, Usability and A/B Testing
- **Analytics:** Big Data Systems, Data Visualization, Dashboarding (Plotly, Tableau, Power BI, HighCharts)
- **Domains:** User Experience (UX) Research, AI-Assisted Decision Support, Visualization, Predictive Analytics, Design (Figma, Canva, Miro, Adobe XD), Studies (Qualtrics, Prolific, MTurk)
- **Misc.:** Project Management, Information Extraction and Automation, Teamwork and Leadership, Documentation

Selected Publications

C=Conference, J=Journal

[C.26a] **Muhammad Raees**, et al. (2026). Understanding Interactive Model Engagement for Appropriate Reliance: An Exploration of AI-Assisted Decision Support in Customer Classification. In *ACM CHI Conference on Human Factors in Computing Systems - Extended Abstracts*, Barcelona, Spain. DOI: 10.1145/3772363.3798834

[C.26b] **Muhammad Raees**, et al. (2026). "We Still Use Spreadsheets." Understanding Business Decision-Makers' Perceptions and Barriers to AI Analytics. In *ACM CHI Conference on Human Factors in Computing Systems - Extended Abstracts*, Barcelona, Spain. DOI: 10.1145/3772363.3798820

[C.26c] **Muhammad Raees** et al. (2026). Do People Appropriately Rely on AI Advice? An Analytical Review of HCI Research on Human-AI Decision-Making. In *ACM CHI Conference on Human Factors in Computing Systems*, Barcelona, Spain. [Honorable Mention Award]. DOI: 10.1145/3772318.3791467.

[C.25a] **Muhammad Raees** et al. (2025). Exploring Persuasive Engagement to Reduce Over-Reliance on AI-Assistance in a Customer Classification Case. In *33rd ACM Conference on User Modeling, Adaptation and Personalization*, New York City, NY. DOI: 10.1145/3699682.3728320

[C.25b] **Muhammad Raees** et al. (2025). UX Challenges in Implementing an Interactive B2B Customer Segmentation Tool. In *ACM CHI Conference on Human Factors in Computing Systems - Extended Abstracts*, Yokohama, Japan. DOI: 10.1145/3706599.3706687

[C.23] **Muhammad Raees**, et al. (2023). Four challenges for IML designers: Lessons of an interactive customer segmentation prototype in a global manufacturing company. In *ACM CHI Conference on Human Factors in Computing Systems - Extended Abstracts*, Hamburg, Germany. DOI: 10.1145/3544549.3585788

For a complete publication list, please view my *Google Scholar*

Awards, Honors, and Fellowships

- **Travel Grants (collective) - ($10000+).** RIT + ACM + NSF. *2024-2026*
- **Best Paper Honorable Mention Award.** ACM CHI *2026*
- **Outstanding Reviews Award.** ACM CHI x 2 *2026*
- **Graduate Research Scholarship - ($150,000).** Sappi Europe - Led by Konstantinos Papangelis. *2022-2027*
- **Scholarship Awards for PhD - ($80,000+).** HEC, Pakistan - Declined. *2022*

Misc.

- **Volunteer Work:** Statistics Without Borders - Project and Client Manager. *2024-Present*
- **Certification:** UX Design, Data Science/Analytics, AI Developer (Nano-Degree), Responsible Research. *2022-2026*
- **Teaching:** Machine Learning, Human-Computer Interaction, Web Development, Programming. *2019-2022*